

NAVAL POSTGRADUATE SCHOOL
Monterey, California



THESIS

**U.S. ASSISTANCE IN THE DESTRUCTION
OF RUSSIA'S CHEMICAL WEAPONS**

by

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December 2000

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OF RUSSIA'S CHEMICAL WEAPONS**

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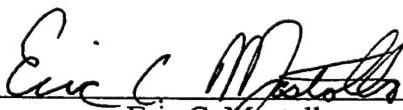
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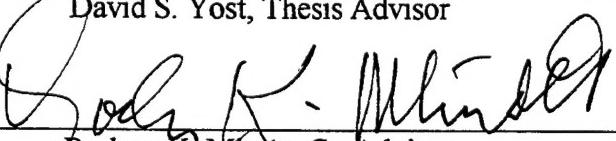


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ABSTRACT

The thesis examines the present status of Russia's chemical weapons destruction program, which is to be implemented according to the 1993 Chemical Weapons Convention (CWC). It assesses the magnitude of the challenges in destroying the world's largest chemical weapons stockpile, which is located at seven sites in western Russia. It also evaluates the environmental and international security concerns posed by the conditions at these sites and the disastrous implications of a failure of this chemical demilitarization program. The thesis then investigates the development of the pilot nerve agent destruction facility at Shchuchye, Russia, which has been the primary focus of U.S. Cooperative Threat Reduction program support to the destruction of Russia's chemical weapons. In view of the decisions by the U.S. Congress to eliminate funding for this destruction facility in FY2000 and FY2001, the thesis examines the apparent causes of these decisions, including concerns about Russian commitment to full implementation of the CWC. The thesis concludes with a review of arguments for continued U.S. and allied support for the destruction of Russia's chemical weapons.

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EXECUTIVE SUMMARY

The thesis examines the present status of Russia's chemical weapons destruction program, which is to be implemented according to the 1993 Chemical Weapons Convention (CWC). It assesses the magnitude of the challenges in destroying the world's largest chemical weapons stockpile, which is located at seven sites in western Russia. It also evaluates the environmental and international security concerns posed by the conditions at these sites and the disastrous implications of a failure of this chemical demilitarization program.

The thesis then investigates the development of the pilot nerve agent destruction facility at Shchuchye, Russia, which has been the primary focus of U.S. Cooperative Threat Reduction program support to the destruction of Russia's chemical weapons. This investigation serves as a case study regarding the immense obstacles facing the Russian chemical demilitarization program as a whole. Finally, this thesis examines the merits of continued U.S. and allied support for the destruction of Russia's chemical weapons.

The existence of Russia's 40,000-ton chemical weapons stockpile poses serious threats to environmental and international security. Russia's past practices of chemical weapons disposal have already created public health hazards among the communities living near the "chemical graveyards." Nonetheless, the deteriorating conditions of the storage tanks at Gorny and Kambarka, which hold blister agents produced in the 1940s, could cause an ecological catastrophe that would affect countries well beyond Russia's borders. The locations of Russia's chemical munitions sites are now publicly known, yet the security of these sites remains grossly inadequate. The minimal protection and

rudimentary tracking of CW munitions increase the temptation for insider theft and smuggling and provide an attractive target for terrorists and the illegal arms market.

Due to its significant economic troubles, Russia's progress in destroying its chemical weapons stockpile has been inadequate. Russia is not able to pay for its chemical demilitarization program and must rely heavily on foreign assistance to eliminate its stockpile. The United States, the largest contributor to Russia's CW destruction program, has focused its assistance on the disposal of Russia's nerve agents. The U.S. Cooperative Threat Reduction program has funded part of the construction of a pilot nerve-agent destruction facility at the Shchuchye site. In view of the decisions by the U.S. Congress to eliminate funding for this destruction facility in FY2000 and FY2001, the thesis examines the apparent causes of these decisions, including concerns about Russian commitment to full implementation of the CWC. The thesis concludes with a review of arguments for continued U.S. and allied support for the destruction of Russia's chemical weapons.

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I. INTRODUCTION

The thesis examines the present status of Russia's chemical weapons destruction program, which is to be implemented according to the 1993 Chemical Weapons Convention (CWC). It assesses the magnitude of the challenges in destroying the world's largest chemical weapons stockpile, which is located at seven sites in western Russia. It also evaluates the environmental and international security concerns posed by the conditions at these sites and the disastrous implications of a failure of this chemical demilitarization program.

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A. BACKGROUND

The Chemical Weapons Convention (CWC) is a treaty that entered into force on 29 April 1997. The CWC bans the use, development, production, stockpiling, and transfer of chemical weapons (CW).¹ Currently, 135 countries have ratified the treaty but only four countries – Russia and the United States included – have admitted to the

¹ *Chemical Weapons Convention*, Available [Online]: <<http://www.opcw.nl/ptshome.htm>>. [18 March 2000].

possession of chemical weapons and have pledged to destroy them.² According to the schedule for the destruction of chemical weapons provided by the Convention, 1% of Category I chemicals must be destroyed within three years (that is, by April 2000), and the complete destruction of all Category I chemicals must be accomplished within ten years (that is, by April 2007). These chemicals are warfare agents; they include nerve agents, mustard agents, lewisites, and toxins, and have limited or no peaceful use.³ The Organization for the Prohibition of Chemical Weapons (OPCW), the administrative body responsible for the implementation of the CWC, can authorize a single five-year extension to the deadline.⁴

The commitment made by the United States and Russia to adhere to the CWC has proven to be highly demanding and costly. The cost of America's program to destroy its 30,000-ton chemical weapons arsenal, originally estimated at \$1.7 billion in 1985, has grown to the current estimate of \$15.7 billion.⁵ Nonetheless, the United States remains on schedule, having destroyed over 15% of its Category I chemicals.⁶ Due to its significant economic troubles, Russia's progress in destroying its 40,000-ton chemical

² *The OPCW and the State Parties*, Available [Online]: <<http://www.opcw.nl/ptshome.htm>>. [18 March 2000]. The other two countries are India and South Korea.

³ Category I includes chemical warfare agents and their precursors. Category II includes dual-use chemicals of limited use. Category III includes dual-use chemicals of extensive use.

⁴ *Chemical Weapons Convention*, Available [Online]: <<http://www.opcw.nl/ptshome.htm>>. [18 March 2000].

⁵ Harold P. Smith, Jr., "Funding the CW Demilitarization in Russia: Time to Share the Burden," *Arms Control Today*, November/December 1998 [journal on-line]; Available from <<http://www.armscontrol.org/ACT/novdec98/cwnd98.htm>>; [19 March 2000].

⁶ Scott Gourley, "USA Ahead of Schedule in Destroying Chemical Arms," *Jane's Defence Weekly*, 17 May 2000, Available from <<http://jdw.janes.com>>; [24 May 2000].

weapons stockpile has been less than minimal. It failed to meet the 29 April 2000 deadline for destroying 1% of its Category I chemicals, according to Alexander Gorbovsky, an official at Russia's federal Munitions Agency.⁷ Russia has appealed to the OPCW to extend the overall deadline from 2007 to 2012. According to the acting director of verification for OPCW, this appeal will be approved.⁸

Despite the extension, it is highly unlikely that Russia will be able to adhere to its commitment to the CWC by the deadline of 2012. Russian officials and independent experts estimate that the destruction program will take from fifteen to thirty years to eliminate the entire stockpile.⁹

B. METHODOLOGY

This thesis is based on primary and secondary sources pertaining to Russia's chemical weapons destruction program, the environmental hazards and proliferation risks associated with the present stockpile, and the challenges (both internal and external) to Russia's implementation of the CWC commitments. A case study of the Shchuchye project is used to examine the numerous factors impeding the successful destruction of Russia's chemical weapons arsenal. One of these factors may be the continuation or termination of assistance from the United States.

⁷ Simon Saradzhyan, "Russian Chemical Arms Disposal Plan Falters," *Defense News*, 15 May 2000, p. 18.

⁸ Ibid.

⁹ Kathleen Vogel, "Ensuring the Security of Russia's Chemical Weapons: A Lab-to-Lab Partnering Program," *The Nonproliferation Review* Vol. 6 No. 2, Winter 1999 [journal on-line]; Available from <<http://cns.miis.edu/pubs/npr/vogel62.htm>> [16 March 2000].

C. THESIS ORGANIZATION

Chapter II examines the present status of the declared weapons sites, the destruction plan, and the challenges to destruction. Chapter III analyzes the environmental and public health risks posed by the chemical weapons storage and the proliferation potential of the chemical weapons. Chapter IV examines the progress and challenges of the Shchuchye Project as a case study for U.S. and Russian cooperation efforts. Chapter V discusses the implications of Russia's potential withdrawal from the CWC and of Russia's possible non-compliance. It also offers conclusions concerning further U.S. assistance to the Russian chemical demilitarization program.

II. RUSSIA'S CHEMICAL STOCKPILE

A. INTRODUCTION

There are 40,000 metric tons of chemical weapon agents on Russian territory.

This represents the world's largest stockpile of chemical weapons. The chemical agents are contained at seven declared sites (Pochepr, Maradikovsky, Leonidovka, Shchuchye, Kizner, Kambarka, and Gorny) located primarily along the Volga river basin in western Russia (see Figure 1). Each site contains approximately fifteen to twenty percent of the total stockpile, with the exception of Gorny which holds almost three percent.¹⁰

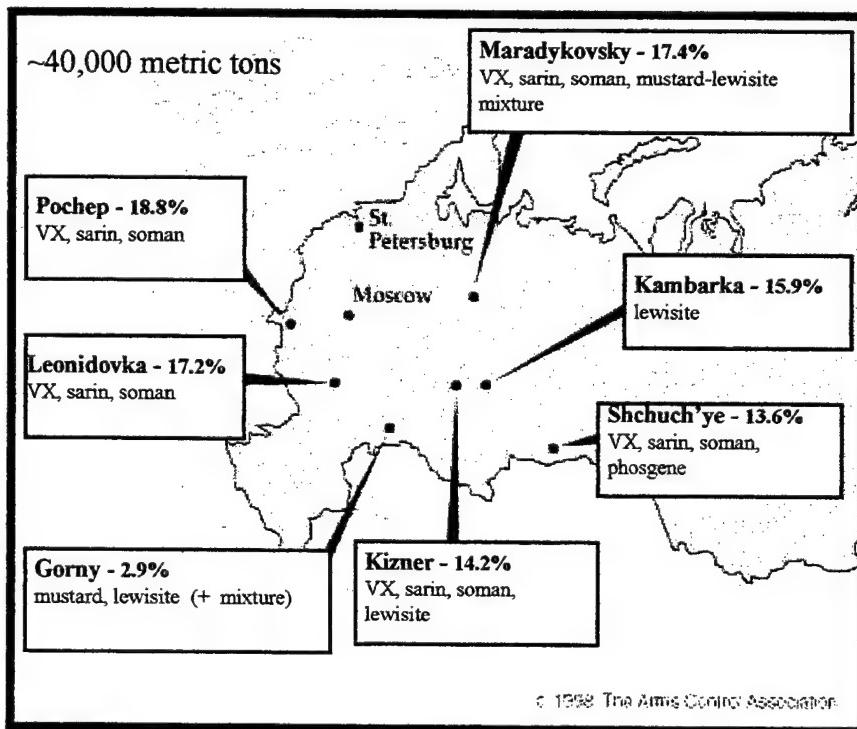


Figure 1. Composition and Distribution of Russia's Chemical Weapon Agents.
After Ref. [<http://www.armscontrol.org/ACT/novdec98/cwjpg.jpg>].

¹⁰ Vogel, "Ensuring the Security of Russia's Chemical Weapons." The question of possible undeclared sites is discussed in Chapter III.

The greater part of the declared stockpile (80%, or 32,300 metric tons) consists of organophosphorus nerve agents (VX, sarin, soman) while the remainder (20%, or 7,700 metric tons) consists of blister agents (mustard gas, lewisite, or a mustard/lewisite mixture) and phosgene.¹¹ The nerve agents and phosgene are stored in munitions (aviation, rocket artillery, and artillery) distributed among five storage facilities while the blister agents are primarily stored in bulk in storage tanks at Kambarka, with lesser amounts at Kizner, Gorny, and Maradikovsky.¹² Unlike the many U.S. munitions targeted for destruction under the U.S. weapons disposal effort, the Russian munitions are fortunately not loaded with explosives or propellants (known collectively as energetics) which would complicate the destruction plan and increase the difficulty of implementing it.¹³

B. THE DESTRUCTION PLAN

The legal and administrative framework for the destruction of chemical weapons on Russian soil was established before CWC ratification. First, Governmental Order No. 305 of 21 March 1996 outlines the timetable and administrative framework for the Russian CW destruction program. Second, the bill titled “On the Destruction of

¹¹ Vogel, “Ensuring the Security of Russia’s Chemical Weapons.”

¹² Ibid.

¹³ Milton E. Blackwood, Jr., “Arsenic and Old Weapons: Chemical Weapons Disposal in Russia.” *The Nonproliferation Review* 4 (Spring/Summer 1999): 90.

Chemical Weapons," signed into law on 2 May 1997, provides the basis for the destruction of CW on Russian soil in accordance with the CWC.¹⁴

Governmental Order No. 305 prioritizes the destruction of chemical weapons agents by phases. The first phase of the plan calls for the destruction of blister agents stored in bulk at Gorny and Kambarka. Blister agents take priority since bulk chemicals are easier to process than the nerve agents weaponized in munitions. Also, due to the deteriorating condition of the storage tanks at Gorny and Kambarka, these agents pose the greatest danger to public health and the environment. Construction of a pilot blister-agent destruction facility at Gorny is currently in progress although it has already exceeded its initially scheduled 1998 completion date. The second phase of the plan is the destruction of nerve agents stored in munitions at the remaining five depots. The original plan projected construction of five nerve-agent destruction facilities to be completed by 2001. However, construction of the pilot nerve-agent destruction facility at Shchuchye has been delayed due to a number of obstacles, and its completion date is presently indeterminable.¹⁵ A more detailed discussion of the Shchuchye project is presented in Chapter IV.

C. CHALLENGES TO DESTRUCTION

The destruction plan designed by the Russian government in 1996-97 has failed to achieve any substantial successes in its implementation. Russia's ability to destroy its chemical weapons arsenal has been severely constrained, if not immobilized, by a

¹⁴ Monterey-Moscow Study Group on Russian Chemical Disarmament, "Eliminating a Deadly Legacy of the Cold War: Overcoming Obstacles to Russian Chemical Disarmament." *Center for Nonproliferation Studies Report* (1998). Available [Online]:<<http://cns.miis.edu/pubs/reports/mmsg.htm>> [17 March 2000].

¹⁵ Ibid.

number of internal and external problems, including shortfalls in government funding and foreign assistance, plus public opposition to the proposed methods of destruction.

1. Government Funding

For Russia, the years since 1991 have been filled with massive economic and budgetary crises. Vital government programs, including health, education, and defense, are competing for the limited funds available given the government's financial constraints. Allocating the necessary funds for chemical weapons disposal has been a daunting task for Russian officials. In 1998, the official cost estimate for destroying the Russian CW stockpile was approximately \$5.7 billion over a 10-15 year period.¹⁶

This estimate does not include additional costs associated with Russia's CW destruction. First, the cost to implement CWC requirements, including the annual dues to the OPCW, the cost of on-site facility inspections, and the expenses accrued from hosting the OPCW teams during inspections, will add up to approximately \$330 million for the 10 year deadline. Second, the cost of socioeconomic infrastructure projects in the communities near the proposed destruction sites is estimated at more than \$1 billion. Finally, funds for improved security and environmental controls at the sites and for the conversion of CW production facilities will need to be provided.¹⁷

To date, the Russian government has spent only a small fraction of the amount the Russian Parliament has nominally allocated toward chemical weapons disposal. From 1995 to 1997, the government spent \$10 million for CW destruction, which was

¹⁶ Ibid.

¹⁷ Ibid. Since Russia will probably receive a five year extension on the deadline, the estimated costs for CWC requirements and maintenance of the facilities will likely increase. Overall destruction costs may increase exponentially, as they did for the United States, when normal operations begin.

approximately 14% of the amount nominally allocated by the Russian Parliament.

Shortly prior to the November 1997 ratification of the CWC, Prime Minister Viktor Chernomyrdin informed the Russian Parliament that the government would increase funds to \$86 million for CW destruction in 1998 but this proposal was never included in the 1998 Federal Budget Bill.¹⁸

Russia's level of government funding is grossly insufficient to cover the costs of Russian CW disposal and merely adequate to cover routine maintenance and upkeep of the facilities. According to Colonel-General Stanislav Petrov, commander of the Radiological, Chemical, and Biological Protection Troops,

The finance provision is poor. To give you an example, in 1996 we got 1 percent of the allocations requested and 5.5 percent of the budget allocations, the funds provided by the budget. Five or seven percent represents the sort of funding that enables us to hold our ground in the situation and it is without any sort of breakdown. There cannot be any substantive work being done.¹⁹

Russia has suggested plans to increase funding for the CW destruction plan through an arsenic recovery project. Approximately 2,300 tons of arsenic, which is used primarily in the microelectronics industry, could be extracted from the 8,000 tons of lewisite stockpile.²⁰ At 1998 prices, one ton of semiconductor-grade arsenic would be worth between one and two million dollars.²¹ However, this project would probably not

¹⁸ Ibid. According to the Moscow-Monterey Study Group report, Prime Minister Chernomyrdin's proposal was stated in his "On Financing Activities in the Area of Chemical Disarmament" letter to Chairman of the State Duma G.N. Seleznyov, dated 27 October 1997.

¹⁹ Petrov quoted in Vogel, "Ensuring the Security of Russia's Chemical Weapons."

²⁰ Blackwood, "Arsenic and Old Weapons," 92.

²¹ Ibid.

produce such monumental profits considering the high cost of converting the lewisite to arsenic and the finite size of the market for arsenic.²²

2. Foreign Assistance

Aside from its own funding, Russia's plan to finance its chemical weapons disposal program relies heavily upon significant amounts of foreign assistance. General Anatoli Kuntsevich, former chairman of the Presidential Committee for Chemical and Biological Weapons Matters, stated in June 1997 that Russia needed foreign assistance to finance up to 80% of the total cost of chemical weapons disposal to meet the requirements of the CWC.²³ To date, aid has come from a number of Western European countries, the European Union (EU), and the United States.

Western European nations have provided approximately \$31 million in the form of bilateral aid projects through 1999 to aid Russia's destruction program. Sweden has contributed approximately \$420,000 to Russian chemical demilitarization projects, including risk analysis for the Kambarka CW site and support for a public outreach center to "link Russian military authorities and local citizens." The Netherlands and Finland have also supported projects at Kambarka totaling \$5.5 million in aid. Germany has promised \$11.8 million in aid for the blister-agent destruction facility in Gorny while Norway has committed \$190,000 for effective environmental and health monitoring at the same site.²⁴

²² Monterey-Moscow Study Group, "Eliminating a Deadly Legacy of the Cold War."

²³ Kuntsevich quoted in Blackwood, "Arsenic and Old Weapons," 93.

²⁴ Paul F. Walker, "Implementing the Chemical Weapons Convention: Technical and Political Challenges in the US and Russia." *The CBW Conventions Bulletin* 4 (June 1999). Available [Online]:<<http://www.gci.ch/pdf/CWC Bull.PDF>> [March 16, 2000].

Upon Russia's CWC ratification on 5 November 1997, the EU collectively agreed to provide \$15 million in technical and financial assistance through 1999. This assistance will be directed toward environmental and health monitoring at Gorny as well as "micro-projects in civil society and ecological monitoring."²⁵ The EU provides assistance to Russia's CW destruction program through the TACIS (Technical Assistance to the Commonwealth of Independent States) program.²⁶

The United States is providing assistance to the Russian CW disposal effort through the Nunn-Lugar Cooperative Threat Reduction (CTR) program, which "supports joint programs between the United States and the former Soviet republics to secure and dismantle weapons of mass destruction, prevent weapons proliferation, and demilitarize the former Soviet defense industry."²⁷ In 1992-1999, the United States spent more than \$1.5 billion in assistance to Russia through CTR. The vast majority of funds went to the reduction of the nuclear threat in former Soviet states with approximately \$200 million going to the destruction of chemical weapons.²⁸ However, the United States recently halted funding for a previously supported Nunn-Lugar project to plan, construct, and initially operate a chemical weapons destruction facility at the Shchuchye site, which contains 13% of the Russian CW stockpile.²⁹ U.S. financial and technical assistance to

²⁵ Ibid.

²⁶ Monterey-Moscow Study Group, "Eliminating a Deadly Legacy of the Cold War."

²⁷ Blackwood, "Arsenic and Old Weapons," 89.

²⁸ Ibid.

²⁹ David Filipov, "Russian Arms Center Opens," *Boston Globe*, 6 April 2000, 2.

Russia's CW destruction program is discussed in greater depth in the case study in Chapter IV.

The contributions by the European Union, various European nations, and the United States to assist Russia in the dismantlement of its chemical arsenal fall far short of the billions necessary to accomplish the task on schedule with the CWC deadline.

3. Public Opposition

Local communities near the chemical weapons sites are arguably the greatest obstacle Russia faces in implementing its CW destruction program. The citizens are apprehensive about the construction of the chemical weapons destruction plants in their areas due to public health and environmental concerns and a growing distrust of the central government. This apprehension is not unwarranted given the Soviet Union's legacy of secrecy in burying vast amounts of chemical agents near populated communities and the well-publicized nuclear accident at Chernobyl.³⁰

The power of Russian communities to stop proposed chemical weapons destruction operations has a precedent. In 1986, the Soviet government built a demonstration destruction facility near the city of Chapayevsk in the Samara region. Local authorities had approved plans for the construction of the plant but the local population was not informed. During its final stages of construction, the local population became aware of the facility and its purpose. This resulted in tremendous grass-roots opposition, with protest rallies, picketing, and petitioning to end the project. Soon afterward, the local council voted against completion and operation of the destruction

³⁰ Russia's historic environmental practices are discussed in detail in Chapter III.

plant. The federal government abandoned its plans for a chemical disposal site at Chapayevsk.

The Chapayevsk case, combined with public concern about the transportation of toxic chemicals, led to President Yeltsin's decision in 1992 that chemical weapons will be destroyed at the seven sites where they are currently stockpiled and that all future plans must include provisions to improve the social conditions and infrastructure of surrounding areas.³¹ Today, the Chapayevsk facility is only used for technical training on CW destruction techniques.³²

Many local mayors and their citizens are refusing to permit construction of chemical weapons facilities until satisfactory guarantees are made concerning socioeconomic benefits to the area. The Russian government's CW destruction plan does provide for such infrastructure projects, to include building of roads, electric power supplies, and water and sewer systems, to facilitate the new plant's operations. Other proposed projects include medical clinics and recreational facilities, which will be solely for the benefit of the local population. These "compensatory" projects will be necessary for the destruction plan to continue but will require the Russian government to pay additional costs estimated at more than \$1 billion.³³

This is a pressing issue among the regional governors and representatives who have stated that no chemical weapons will be destroyed until Moscow delivers such socioeconomic investments. According to Paul F. Walker's assessment, "Chemical

³¹ Blackwood, "Arsenic and Old Weapons," 91.

³² Monterey-Moscow Study Group, "Eliminating a Deadly Legacy of the Cold War."

³³ Ibid.

weapons stockpiles are being held hostage to long-awaited societal needs in the Russian regions.”³⁴

D. CONCLUSION

Russia possesses the world’s largest stockpile of chemical weapons and has assumed the responsibility of eliminating the total arsenal in accordance with the Chemical Weapons Convention. Russia has developed the legal framework and chemical weapons destruction plan in accordance with CWC requirements but has faced significant challenges in its implementation.

Due to its economic troubles, Russia is not able to pay for its chemical demilitarization program and must rely heavily on foreign assistance to eliminate its stockpile. The European Union and various Western European states have contributed technical and financial aid for the destruction of Russia’s blister agents. The United States, the largest contributor to Russia’s CW destruction program, has focused its assistance on the disposal of Russia’s nerve agents; this effort includes the funding of a pilot nerve-agent destruction facility at the Shchuchye site. Overall, foreign assistance falls far short of the billions necessary to eliminate the Russian stockpile.

Aside from financial shortfalls, Russia faces an equally challenging social obstacle to its CW destruction. Progress to destruction is stymied by the health and environmental concerns of the impoverished communities near the chemical storage sites. Chemical weapons are being “held hostage” until regional authorities are satisfied that the safety of their citizens and the environment will be insured and that its socioeconomic infrastructure will be improved. It is clear that destruction of Russia’s chemical weapons

³⁴ Walker, “Implementing the Chemical Weapons Convention.”

arsenal will be difficult, if not impossible, to achieve in the next ten to fifteen years if these challenges are not met.

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III. ENVIRONMENTAL AND SECURITY CONCERNS

A. ENVIRONMENT AND PUBLIC HEALTH

The legacy of the Soviet Union's disposal of chemical weapons reflects a low regard for environmental security and public health. The USSR discarded chemical weapons by sea dumping (in the Baltic Sea, Pacific Ocean, Arctic Ocean, and the White Sea), open-pit burning, and burial, all of which are now illegal methods of disposal under the CWC.³⁵ Lev Fedorov, the president of the Union of Chemical Safety, estimates that the Soviet military dumped or buried close to half a million tons of chemical weapons between the end of World War II and the late 1980s.³⁶

The Russian government has publicly declared the possession of 40,000 tons of chemical agents in stockpile; but it has never acknowledged the numerous aerial bombs filled with chemical agents that were secretly dumped and destroyed in past decades, nor does it need to by CWC standards. According to the CWC, a state party with chemical weapons buried on its territory before 1 January 1977 or dumped at sea before 1 January 1985 may choose whether or not to recover them. However, if a state party chooses to recover them, it must publicly declare the weapons and destroy them.³⁷

The Russian government has not acknowledged the areas where chemical weapons were buried, incinerated, or dumped possibly due to the financial and social

³⁵ Blackwood, "Arsenic and Old Weapons," 91.

³⁶ David Hoffman, "Russia's Forgotten Chemical Weapons." *The Washington Post* (16 August 1998). Available [Online]: <<http://washingtonpost.com/wpsrv/inatl/longterm/coldwar/leonidovkaa.htm>>. [17 March 2000].

³⁷ *Chemical Weapons Convention*.

responsibility it would have to assume in the recovery and destruction of the abandoned weapons, followed by decontamination of the affected areas. The reluctance to identify these hazardous areas may also stem from the Russian government's tradition of secrecy and denial. Throughout its history, the Soviet Union attempted to keep the chemical arsenals and bomb factories, and the subsequent pollution, a strict state secret. Even today, information on the clandestine dumping and old destruction sites remains classified information.

The Russian military has failed to take any responsibility for its actions concerning past chemical weapons disposal, dismissing evidence of the toxic sites and the reports of associated health problems. Colonel-General Stanislav Petrov, officer-in-charge of chemical weapons, stated that the search of military archives found "insufficient information to locate such dumps," which are nonetheless not "priority targets." He added, "I think this problem does not exist for us. The burials in the ground were nothing at all on Russian territory."³⁸

The Russian government and its military have failed to acknowledge these "chemical graveyards" despite the severe ecological and public health crises they have caused within nearby communities. Independent research regarding these affected areas has provided insight on the potential environmental and health risks posed by the declared stockpiles.

1. Effects of Past Practices

In 1998, Vladimir Pankratov, environmentalist and head of the Penza chapter of Green Cross, led a team of experts in examining soil samples taken from an abandoned

³⁸ Petrov quoted in Hoffman, "Russia's Forgotten Chemical Weapons."

munitions dump at Leonidovka. Buried at the site are World War II aerial bombs, which contained a volatile mixture of lewisite, a blistering poison gas, and yperite, a sulfur mustard gas. This abandoned site is located a few hundred yards from the military base, which houses a declared stockpile of nerve agents.

The group's findings are alarming. The soil where chemical weapons were destroyed contained heavy concentrations of arsenic, an average of 30 grams per kilogram of soil, found six to sixteen feet deep. According to Pankratov, this average is 15,000 times greater than the permissible concentration of arsenic by Russian standards, which is 2 milligrams per kilogram of soil. Although the lewisite from the weapons had dissipated, studies have shown that arsenic compounds can remain in the soil for dozens of years. Within a few miles of the dump, Pantkratov's group found levels of arsenic ten times the permissible level in the bottom sediments of the Sursk Reservoir. The Sursk Reservoir is the source of drinking water for the people of nearby Penza, a city of 530,000 inhabitants located approximately 350 miles southeast of Moscow. Arsenic is highly toxic, known to cause a violent, painful death in cases of acute poisoning and to cause a number of serious ailments, including cancer, in cases of long-term exposure.³⁹

Leonidovka holds but one of the many abandoned munitions dumps in Russia that have created an ecological nightmare. According to Green Cross Russia, medical staff have noted among the populations of these polluted regions "the appearance of special

³⁹ Ibid.

kidney and stomach diseases connected with the accumulation in the body of harmful chemical elements such as arsenic and fluorine" and a high incidence of cancer.⁴⁰

2. Potential Hazards of Declared Stockpiles

In addition to the abandoned munitions dumps, conditions at the declared chemical weapons depots present a great potential for an environmental and public health disaster. Studies have found adverse effects on public health among the populations living near the declared stockpiles also. Tatyana Grozdova, deputy director of a regional children's hospital in the Saratov region, conducted a series of screenings in 1994 and in 1995 of 595 children living in Gorny and nearby villages. Her findings indicated that the closer a child lived to the chemical weapons depot, the higher the incidence of disease, most often in the form of skin diseases and disorders within the urinary system or digestive organs. Grozdova admits the research is incomplete due to the lack of money for sophisticated tests, proper equipment, and toxicologists. Also, the Russian military is uncooperative, refusing to provide information concerning possible leaks or dumping of toxic chemicals from the base.⁴¹

The stockpile of blister agents at Gorny and Kambarka represents the greatest threat to the environment and public safety. These two depots possess the oldest of Russia's chemical weapons. Blister agents, some produced in the 1940s, are stored here in 80-ton steel containers with walls less than half an inch thick. According to Lieutenant General Yuri Tarasevich, division deputy of Radiation, Chemical, and Biological Safety,

⁴⁰ Anna Shcherbakova, "Poisonous Bomb" Green Cross Russia (20 May 1997)." Available [Online]: <<http://www.gci.ch/GreenCrossPrograms/legacy/articles/Poisonous.html>. [17 March 2000].

⁴¹ Hoffman, "Russia's Forgotten Chemical Weapons."

“the walls of storage tanks are corroded” and at the Shchuchye site, buildings containing nerve agents are “becoming decrepit.” Public safety and environmental concerns are high; for some speculate that the heavy rains in the region could lead to an ecological catastrophe, as several storage facilities have flooded in the past. Unfortunately, most of the storage facilities are not even equipped with a basic alert mechanism to warn of dangerous levels of toxins in the air.⁴²

B. INTERNATIONAL SECURITY

According to researchers Joseph Douglass and Neil Livingstone, “The amount of VX (a nerve agent) that one can place on the head of a pin is sufficient to produce death in a human being.”⁴³ Richard Clark writes, “A canister of VX dropped from any tall building or sprayed over a large city from a private plane would kill millions.”⁴⁴ The Leonidovka military base, which holds only 17% of Russia’s stockpile, possesses more than enough nerve gas, if distributed by individual doses, to kill every human being on earth.⁴⁵

Nerve agents are extremely toxic and work rapidly. In the form of gas, aerosol, or liquid, the nerve agent enters the body through inhalation or through the skin. At first, the victim experiences difficulty in breathing accompanied by violent coughing. This is followed by gastro-intestinal pain, which may lead to cramping, vomiting, and possibly

⁴² Blackwood, “Arsenic and Old Weapons,” 95.

⁴³ Douglass and Livingstone quoted in Canadian Security Intelligence Service, “Chemical Terrorism.” Available [Online]: <<http://www.csis-scrs.gc.ca/eng/miscdocs/chemtere.html>>. [18 March 2000].

⁴⁴ Clark quoted in Canadian Security Intelligence Service, “Chemical Terrorism.”

⁴⁵ Hoffman, “Russia’s Forgotten Chemical Weapons.”

involuntary discharge of urine and defecation. If the body is exposed to a high concentration of the nerve agent, e.g., 200 mg sarin/m³, death may occur within a couple of minutes. Death by lethal exposure to nerve agents is likened to death by suffocation.⁴⁶

On 20 March 1995, the Aum Shinrikyo cult attacked a Tokyo subway system with the chemical agent sarin, which resulted in 12 deaths and over 5,000 injured passengers. Reports state that this terrorist operation would have claimed thousands of lives had the weapon been delivered as an aerosol instead of allowing the sarin to evaporate from the small containers placed on the subway trains.⁴⁷ Investigations following the attack discovered that Aum Shinrikyo had connections with people from the Russian Radiation, Chemical, and Biological Defense Troops, the Russian Academy of Sciences, and Russian Intelligence. Aum leaders had made numerous visits to the former Soviet Union to acquire equipment and technical knowledge for the production of weapons of mass destruction. Although the cult members produced the sarin themselves, allegedly from a Russian military recipe, the investigation's findings indicate that it is possible that Russian CW has been or will be diverted to interested parties.⁴⁸

1. The Demand for Chemical Weapons

According to Michael Moodie, chemical weapons "represent an option of increasing interest to nonstate actors, particularly terrorists." He also states that "CW

⁴⁶ FOA Briefing Book on Chemical Weapons. "Chemical Warfare Agents: An Overview of Chemicals Defined as Chemical Weapons" Organization for the Prohibition of Chemical Weapons (OPCW) homepage. Available [Online]: <<http://www.opcw.nl/chemhaz/cwagents.htm>>. [18 March 2000].

⁴⁷ Michael L. Moodie, "The Chemical Weapons Threat" in *The New Terror* ed. Sidney D. Drell, Abraham D. Sofaer, and George D. Wilson (Stanford: Hoover Institution Press, 1999), 15.

⁴⁸ Vogel, "Ensuring the Security of Russia's Chemical Weapons."

remain the least glamorous of weapons of mass destruction; but they have been the most used.”⁴⁹ “For NBC [Nuclear, Biological, Chemical] terrorism,” writes Wayman Mullins, “chemical agents are the ideal weapon and offer the greatest probability of success,” given their characteristics of easy dispersal.⁵⁰ Moreover, CW effects are more containable and controllable than those of nuclear or biological weapons.

Many chemical munitions are relatively small in size; small enough to fit in a backpack, allowing the terrorist to conceal and transport them with little difficulty. Protective gear and gas masks are available commercially. The employment of a chemical weapon would be more straightforward than that of a nuclear weapon in that a CW could be delivered with many “existing conventional systems or even homemade reconfigured designs.” Although the use of chemical weapons would require some effort and coordination, the Aum Shinrikyo cult demonstrated that it is possible for groups possessing sufficient resources, technological infrastructure, and determination to use CW. One such group, the Hezbollah, have attempted to purchase chemical and biological weapons from Eastern Europe, according to a 1998 London *Times* report.⁵¹

The stockpile of nerve agents in Russia provides an attractive source for terrorists wishing to acquire chemical weapons. Compared to the sarin produced by the Aum Shinrikyo cult, the nerve agents at Russian sites are of the highest purity and therefore

⁴⁹ Moodie, “The Chemical Weapons Threat,” 6.

⁵⁰ Mullins quoted in Canadian Security Intelligence Service, “Chemical Terrorism.”

⁵¹ *Times* (London), 3 March 1998, quoted in Vogel, “Ensuring the Security of Russia’s Chemical Weapons.”

more lethal and effective.⁵² The munitions stored at the depots are in good condition, portable, and have "excellent agent-dispersal ability."⁵³ However, these munitions are not loaded with explosives or propellants. This deficiency may deter terrorists who do not have the sophisticated equipment and technical expertise to provide a delivery mechanism.⁵⁴

2. Security Management At Declared CW Sites

In 1995, Dr. Amy Smithson of the Stimson Center published a report entitled "Improving the Security of Russia's Chemical Weapons Stockpile," which compiled the security observations by persons who had visited Russian CW sites. The report identifies alarming deficiencies in the physical security and weapons accounting at CW storage facilities and makes evident these facilities' high vulnerability to theft. Smithson's findings corroborate with the consensus of Russian military officers who readily admit that the security measures at the facilities are "inadequate" and who contend that the CW munitions are even more susceptible to theft now that the locations of the seven storage sites have been made public.⁵⁵

The strength of perimeter security at the facilities is meager. Sites are enclosed with two to four concentric rings of fencing, either chain link, barbed wire, or electrified. Much of the fencing has rusted or completely worn away. Some sites do not have proper

⁵² Blackwood, "Arsenic and Old Weapons," 95.

⁵³ Igor Khripunov and Jonathan Tucker, "Don't Downplay Threat From Moscow's Arsenal," *Los Angeles Times* (18 August 1999). Available [Online]: <<http://cns.miis.edu/pubs/reports/khrituck.htm>> [18 March 2000].

⁵⁴ Blackwood, "Arsenic and Old Weapons," 95.

⁵⁵ Vogel, "Ensuring the Security of Russia's Chemical Weapons."

clear zones or patrol paths along fencing located adjacent to woods or villages providing good covert entry points. At each site, there are separate gates for personnel, railroads, and vehicles; yet only the main gates are consistently manned with guards. The railroad gates are secured with padlocks while the side pedestrian entrances are routinely unsecured. At two of the seven sites, the perimeter lights are either too few in number or poorly maintained, while the remaining five sites have no perimeter lighting at all. None of the CW sites' entrances is equipped with intrusion detection systems or closed-circuit televisions.⁵⁶

The physical condition of the storage buildings is appalling. Some chemical munitions are stored in cement buildings with either steel or wood doors, while others are stored in buildings constructed entirely of wood. Each door is secured with a single key padlock. Some buildings have roofs with gaping holes. At one site, intrusion detection devices (circuit breakers) on building entrances were observed, yet none of the CW sites post guards at individual storage buildings.⁵⁷

Russian inventory and accounting practices for CW are very rudimentary. The munitions and missile warheads are kept in "wine rack" type storage units distinguished only by production lot number and not by serial numbers. In contrast with U.S. practice (regular inspections and computerized inventory), individual Russian officers are personally responsible for munitions tracking and accounting, kept by handwritten log, of hundreds of munitions dispersed among several storage units; but it is often enlisted personnel who perform the inventories. Currently, cross-checking inventories are not

⁵⁶ Ibid.

⁵⁷ Ibid.

performed at the CW sites, and it is “unclear whether inventory records are updated to reflect the periodic removal of leaking munitions.”⁵⁸ With this type of accounting system in place, missing munitions could go unnoticed for days, weeks, or even longer.

3. Proliferation Risks

The inadequate physical security and munitions tracking of the Russian stockpile make the chemical munitions highly susceptible to theft and smuggling. There are few documented cases of attempted smuggling of chemical agents from Russia. In 1996, the Istanbul Security Directorate seized 20 tubes of Russian-made nerve and blister agents from a potential trafficker named Emim Ekinci. In an undercover sting operation, detectives agreed to pay Ekinci \$1 million for the chemical agents. During his interrogation by police, Ekinci disclosed that he had acquired the containers from a former KGB officer in Russia and that he was prepared to sell them to any interested buyer. A report of an alleged smuggling came in 1997 when Chechen leader Salman Raduyev announced that he had acquired Russian CW and issued public threats to use them.⁵⁹

Plagued with economic crisis, widespread government and military corruption, and organized crime, Russia is an environment apt for the proliferation of chemical weapons. A market for illegal arms both inside and outside Russia is thriving. Due to its economic restrictions and military downsizing, the Russian government’s ability to combat illegal arms activity has diminished. For those military members who remain, the pay and benefits are minimal. Given poor living standards for Russian military

⁵⁸ Ibid.

⁵⁹ Ibid.

personnel, the inadequate security and accounting practices at the CW sites, and the number of criminal elements able to pay substantially for arms, the possibility of insider theft of chemical munitions is substantial. Although there are no documented cases involving chemical weapons, "the Russian military and security forces are the principal source of arms becoming available to organized crime groups, participants in regional conflicts, and corrupt state officials engaged in black, gray, and legal arms markets in their various dimensions."⁶⁰

Future proliferation of Russia's chemical weapons is a legitimate concern. Colonel-General Stanislav Petrov, commander of the Radiological, Chemical, and Biological Protection Troops, has acknowledged the weaknesses inherent in Russia's security measures for the stockpile and has warned that the continued existence of Russia's CW is an increasing temptation for "madmen" and "terrorists."⁶¹ Dr. Graham Turbiville, senior analyst with the U.S. Army's Foreign Military Studies Office, has argued that "the protection of Russian military chemical agents and the potential vectors for their diversion constitute a problem at least as large as the nuclear proliferation issue."⁶²

⁶⁰ Turbiville quoted in Vogel, "Ensuring the Security of Russia's Chemical Weapons."

⁶¹ Petrov quoted in Monterey-Moscow Study Group on Russian Chemical Disarmament, "Eliminating a Deadly Legacy of the Cold War: Overcoming Obstacles to Russian Chemical Disarmament." *Center for Nonproliferation Studies Report* (1998). Available [Online]: <<http://cns.miis.edu/pubs/reports/mmsg.htm>> [March 17, 2000].

⁶² Turbiville quoted in Vogel, "Ensuring the Security of Russia's Chemical Weapons."

C. CONCLUSION

The continued existence of the Russian stockpile poses serious threats to environmental and international security. Russia's past practices of chemical weapons disposal have created public health hazards among the communities living near the "chemical graveyards." Although its government and its military fail to acknowledge the abandoned munitions dumps or to address the growing concerns of the public, Russia faces an even greater environmental challenge ahead. The deteriorating conditions of the storage tanks at Gorny and Kambarka which hold blister agents produced in the 1940s could cause an ecological catastrophe that would affect people well beyond Russia's borders.

Russia's CW stockpile poses a serious challenge to U.S. non-proliferation efforts. The locations of Russia's chemical munitions sites are now publicly known but the protection of those sites remains grossly inadequate. The most obvious weaknesses of Russian CW physical security are the lack of sophisticated security devices, such as intrusion detection systems and closed circuit TV, the weak building construction, and the highly penetrable locks and physical barriers. The rudimentary inventory and tracking practices of the stockpile would probably permit the loss of a chemical munition to go unnoticed. This circumstance increases the risks of insider theft and smuggling. As the demand for weapons of mass destruction persists, Russia's chemical weapons stockpile remains an attractive target for terrorists and the illegal arms market.

IV. THE SHCHUCHYE PROJECT

A. INTRODUCTION

The United States has provided financial and technical assistance for the destruction of Russia's chemical weapons through the Cooperative Threat Reduction (CTR) program. The Soviet Nuclear Threat Reduction Act, commonly known as the Nunn-Lugar Act, established the CTR program in 1991. Sponsored by Democratic Senator Sam Nunn of Georgia and Republican Senator Richard Lugar of Indiana, the Threat Reduction Act was designed to prevent the proliferation of weapons of mass destruction (WMD) and to "facilitate the safe transport, storage, safeguarding and destruction of such weapons in the Soviet Union, its republics, and any successor states." Since 1991, the CTR program has provided more than \$2.4 billion in assistance to the former Soviet Union (FSU), primarily directed towards the dismantlement of nuclear weapons.⁶³

The CTR program outlined five objectives derived from U.S. "congressional directives, national security priorities, and foreign policy goals." Objectives one through three focus on control and reduction of nuclear arms, while objective five is a general commitment to military reform and the reduction of proliferation threats in the FSU. The fourth objective is "to assist the former Soviet Union to eliminate and prevent

⁶³ Amy Smithson, "US Assistance to Russia's Chemical Weapon Destruction Programme," in *Chemical Weapon Destruction in Russia: Political, Legal, and Technical Aspects*, ed. John Hart and Cynthia Miller, SIPRI Chemical & Biological Warfare Studies, vol. 17 (New York: Oxford University Press, 1998), 123.

proliferation of biological and chemical weapons and associated capabilities.”⁶⁴ To accomplish this objective, the Chemical Weapons Destruction Support Program (CWDSP) was established within the CTR organization to specifically manage threat reduction issues pertaining to chemical weapons. Its primary mission is “to support the safe, secure, timely, cost-effective and environmentally sound destruction of the Russian Federation chemical weapons stockpile,” with priority given to the destruction of nerve-agent filled munitions.⁶⁵

U.S. financial and technical assistance supports CWDSP efforts in accomplishing the following goals to “jump-start” Russia’s chemical weapons destruction program:

- 1) Initiate the design and construction of the first stage of the Russian nerve agent destruction facility at Shchuchye to support Russian development of the full-scale facility.
- 2) Work with Russian scientists in the technical evaluation of the selected disposal technology for the Shchuchye facility.
- 3) Provide the equipment and technological support to enable the Russians to conduct monitoring and analysis of the stored chemical weapons and of the effectiveness of the selected disposal technology.
- 4) Train Russian personnel to operate the analytical and monitoring equipment and to support operations at the new facility.
- 5) Provide funding for the public outreach efforts of the Russian Federation to facilitate communication with Russian citizens about the chemical weapons disposal process.⁶⁶

The main thrust of CWDSP efforts is the creation of a pilot nerve-agent destruction facility at Shchuchye. The plan calls for Russia’s Ministry of Defense

⁶⁴ Defense Threat Reduction Agency, “Cooperative Threat Reduction Program Objectives,” Available [Online]: <<http://www.dtra.mil/ctr/02object.html>> [24 September 2000].

⁶⁵ Program Manager for Chemical Demilitarization (PMCD), “Cooperative Threat Reduction: A Program Overview,” Available [Online]: <http://131.92.71.231/graphical/CTR/IP/FS/CTR_Overview/index.html> [24 September 2000].

⁶⁶ Ibid.

(MOD) to take over the stage one destruction facility "after a successful demonstration of the facility's effectiveness in destroying nerve agent-filled munitions in a safe and environmentally sound manner." The MOD will then become solely responsible for the "operation of the destruction facility, its expansion to a full-scale facility, and the ultimate disposal of the stockpile at Shchuchye." Using the technical knowledge gained from the Chemical Weapons Destruction Support Program, Russia will be independently capable of building future facilities at the four remaining nerve-agent stockpiles.⁶⁷

For this cooperative project to proceed, Russia must fulfill a number of obligations itself. First, the Russian central government is responsible for the construction of auxiliary improvements to the industrial infrastructure, which will support the Shchuchye destruction site. The site will require well-made roads, electric power supplies, water and sewer systems, as well as housing for the construction workers. The United States agreed to underwrite a share of these improvements considered to be "inside the fence" of the destruction site.

Second, Russia must independently provide "compensatory" socio-economic infrastructure projects, "outside the fence," to the general community around the Shchuchye site, according to its own CW destruction plan. These projects include the construction of medical clinics, recreational facilities, and day-care centers. Benefits for the local population, guaranteed by President Yeltsin's decision in 1992 after severe public opposition to construction in Chapayevsk, is a political necessity. Finally, the Russian central government must address the legitimate environmental and health

⁶⁷ Ibid.

concerns of the local government and its citizens before CW destruction may commence.⁶⁸

B. INITIAL OBSTACLES TOWARD CW DESTRUCTION

On 30 July 1992, the United States and Russia signed the “Agreement Concerning the Safe, Secure, and Ecologically Sound Destruction of Chemical Weapons,” known also as the CW Destruction Agreement, which officially teamed the U.S Department of Defense with Russia’s Ministry of Defense to develop a Russian CW destruction plan. The agreement provided Russia with the initial \$25 million in U.S. assistance toward the destruction of its chemical weapons arsenal.⁶⁹ However, two preliminary decisions concerning Russia’s CW destruction plan challenged this cooperative effort by the United States and Russia: the selection of the destruction technology and the site selection for the first chemical weapons destruction facility.

1. Selection of Destruction Technology

U.S. officials supported high-temperature incineration as the destruction technology for Russia’s CW stockpile. Incineration technology had already been tested and proven effective in destroying U.S. chemical weapons safely. In operation since 1990, the U.S. pilot destruction facility on Johnston Island, a remote island over 700 miles southwest of Hawaii, has used incineration technology producing “satisfactory levels of destruction with an enviable safety record.” The on-site Fish and Wildlife Commission determined that the technology would not endanger the environment.

⁶⁸ Monterey-Moscow Study Group, “Eliminating a Deadly Legacy of the Cold War.”

⁶⁹ Stockholm International Peace Research Institute (SIPRI), “United States Assistance [to chemical weapons destruction in Russia],” Available [Online]: <<http://projects.sipri.se/cbw/research/sipri-bicc-cw-assist-us.html>>. [24 September 2000].

Incineration technology had also been accepted by “all appropriate authorities” at the storage site in Tooele, Utah, which holds more than 40% of the U.S. stockpile.⁷⁰

From the U.S. point of view, selection of incineration technology to destroy Russia’s CW stockpile is both technically and financially practical. Ten years of U.S. research and development for the high-incineration technology cost approximately \$2 billion. To select an alternative method would require “additional time and expense for full-scale development and large-scale testing.” The United States would provide the incineration technology to Russia immediately and “free of charge,” which would allow the destruction of chemical weapons in Russia to begin much sooner.⁷¹

Russia’s Ministry of Defense decided against incineration in favor of an untested two-stage technology, neutralization followed by bituminization. In this process, the munitions first pass through drill-and-drain machines to remove the nerve agent. Russian chemical weapons were welded shut during assembly and therefore the nerve agent cannot be drained, like U.S. munitions, using reverse-assembly technology. Upon removal, the nerve agent is chemically neutralized by mixing it with an organic chemical reagent [monoethanolamine (MEA) for sarin and soman, or a Russian mixture called RD4M for VX]. The neutralized agent, called a reaction mass, concludes stage one of the destruction process. During stage two of the process, bituminization, the reaction mass is mixed with hot petroleum asphalt and solidified. The byproduct, called bitumen salt

⁷⁰ Smith, “Funding the CW Demilitarization in Russia: Time to Share the Burden.”

⁷¹ Ibid.

mass, is placed in steel barrels and buried in specially designed bunkers located above groundwater level adjacent to the destruction facility.⁷²

Russia's decision on destruction technology caused much frustration and confusion among U.S. officials. The Ministry of Defense explained that the local population had rejected the use of incineration technology within their communities. U.S. officials were surprised that the Russian people, given their strong distrust of government projects, would accept an unproven Russian destruction technology and reject an established technology, already accepted by their counterparts in America. In addition, neutralization-bituminization leaves behind a waste product, which must be stored permanently in bunkers, while incineration leaves no residue that poses a possible long-term liability.⁷³

Russia's development of the two-stage process had not gone beyond some initial laboratory work, guaranteeing that Russia's CW destruction plan would take longer and cost more to implement than one based on U.S. incineration technology. According to CTR requirements, no more than 50% of the funds allocated toward Russian CW destruction could be spent until the President of the United States had certified that a U.S.-Russian evaluation of the two-stage process had been completed.⁷⁴ The joint evaluation of the destruction process began in 1994.

⁷² PMCD, "Chemical Weapons Destruction Facility Planned for Kurgan Region," Available [Online]: <http://131.92.71.231/graphical/CTR/IP/FS/CWDF_Description/index.html> [24 September 2000].

⁷³ Smith, "Funding the CW Demilitarization in Russia: Time to Share the Burden."

⁷⁴ SIPRI, "United States Assistance [to chemical weapons destruction in Russia]."

The first test was conducted between May and August 1995 at the U.S. Army's Chemical and Biological Defense Command at the Edgewood Area of the Aberdeen Proving Ground, Maryland. The second test was conducted between October and November 1995 at the Saratov Higher Military Engineering School of Chemical Defense near Moscow. Both tests demonstrated that the two-stage process "could achieve consistently high destruction efficiencies." Subsequently, a Peer Review Committee, consisting of three Americans and three Russians, evaluated the test results and concluded that neutralization-bituminization technology met or exceeded requirements for safe and effective CW destruction. A final report of the test results, released in March 1996, indicated that the two-stage destruction process "effectively eliminated 99.99 percent of three types of nerve agents, while the bitumen salt mass resulting from the two-stage process was determined to be safe for disposal in a specially constructed landfill."⁷⁵

The selection of a destruction technology presented the United States and Russia with a technical and political challenge. Aside from the additional expenses and efforts needed to test and evaluate Russia's two-stage technology, the selection caused a two-year delay, which further exasperated the U.S. Congress, where serious doubts about Russia's commitment to destroy its CW arsenal were beginning to surface.

2. Site Selection for Chemical Weapons Destruction Facility (CWDF)

For the United States, the first Russian chemical weapons depot selected for destruction should satisfy two simple criteria. The first criterion, maximum reduction of the military threat, pointed toward the selection of one of the larger nerve-agent

⁷⁵ PMCD, "Chemical Weapons Destruction Facility Planned for Kurgan Region."

munitions depots. As explained in Chapter III, Russia's nerve-agent munitions could pose a greater threat to U.S. national security than its blister agents. The second criterion, minimum expense of time and money, calls for a CW munitions depot with developed infrastructure of power, water, and roads. The selected depot should have a pool of skilled labor already available and be located fairly close to commercial areas to simplify the logistics tasks.⁷⁶

Russia's CW destruction plan calls for blister agents stored in bulk at Gorny and Kambarka to be destroyed first, followed by nerve-agent munitions at the five remaining depots. Russia is less concerned with the security implications posed by nerve-agent munitions than it is with the immediate environmental and public health dangers posed by the deteriorating storage tanks containing blister agents.⁷⁷ Therefore, when the U.S. Congress approved \$78.5 million in CTR funds for the construction of a pilot nerve-agent destruction facility in 1996, some officials in Moscow publicly complained that the U.S. funding was largely misdirected. Alexander Pikayev of the Moscow Carnegie Center argued that the U.S. funding should be directed toward Gorny and "its leaky containers of now inert gases," but he understood the United States choice to first remove the nerve agents which were "still of military value."⁷⁸ In December 1996, the Ministry of Defense selected the Shchuchye CW depot to be the location of the U.S.-funded facility.⁷⁹

⁷⁶ Smith, "Funding the CW Demilitarization in Russia: Time to Share the Burden."

⁷⁷ Monterey-Moscow Study Group, "Eliminating a Deadly Legacy of the Cold War."

⁷⁸ Saradzhyan, "Russian Chemical Arms Disposal Plan Falters," 18.

⁷⁹ Smithson, "US Assistance to Russia's Chemical Weapon Destruction Programme," 126.

The town of Shchuchye (pop. 11,100) is located in the Kurgan region of western Siberia, 975 miles southeast of Moscow. The smallest of five depots containing nerve agents, Shchuchye represents less than 14% of Russia's total CW stockpile. Approximately 5,600 metric tons of chemical agents are stored in almost two million munitions at Shchuchye.⁸⁰

Unfortunately, Shchuchye is also the site "farthest from any point of entry that would be convenient to shipments from the United States or Europe."⁸¹ The Kurgan region is a predominantly rural area with little heavy industry and a struggling economy. The region has a limited water supply which has been subjected to "heavy metals, radioactive materials, liquid municipal wastes, and effluents from industry, farms and households, largely disposed into ponds and swamps without drainage, where they are neither diluted nor treated." The impact of these waste practices has been highly detrimental to the environment, reducing the quality of ground and surface water, soil conditions, plant and animal life. Understandably, human health concerns are prevalent among the residents of the Kurgan region, which lacks comprehensive medical services.⁸²

Russia's selection of Shchuchye, the smallest and most remote of the nerve-agent depots and the one in need of the most extensive infrastructure improvements, caused notable frustration among U.S. officials. However, the possible reasons for Russia

⁸⁰ PMCD, "Chemical Weapons Destruction Facility Planned for Kurgan Region."

⁸¹ Smith, "Funding the CW Demilitarization in Russia: Time to Share the Burden."

⁸² PMCD, "Shchuchye, Chumlyak, Planovy and the Kurgan Region," Available [Online]: <<http://131.92.71.231/graphical/CTR/IP/FS/Kurgan/index.html>. [24 September 2000].

selecting this site make sense in terms of Russian interests. First, Russia may have chosen the most remote site to develop its unproven neutralization-bituminization technology for the safety of its citizens and the environment in the event of an accident. (The United States, it will be recalled, chose a remote island 700 miles from Hawaii to develop its technology.) The second reason, one possibly less acceptable to U.S. officials, may have been that the United States agreed to underwrite some infrastructure costs for one CW destruction site, so Russia chose the Shchuchye site because it is the most in need of infrastructure improvements.⁸³

Both the selection of the destruction technology and the site selection for the first chemical weapons destruction facility were critical issues of debate between the United State and Russia. At times during the negotiations, the CTR program to assist in Russia's chemical weapons destruction seemed destined for termination. Nonetheless, the program survived these initial obstacles and has progressively achieved a number of accomplishments toward the disposal of Russia's CW arsenal.

C. PROJECT MILESTONES

The joint evaluation of the two-stage destruction process in 1996, which confirmed the effectiveness of Russia's proposed technology, represents one of several milestones reached by U.S. Cooperative Threat Reduction program officials and their Russian counterparts toward the construction of the destruction facility at Shchuchye. The completion of the joint evaluation led to the optimization phase to finalize the testing and ultimate implementation of the two-stage technology. The optimization phase, like other CW-CTR projects, is a partnership of a U.S. contractor and a Russian organization,

⁸³ Smith, "Funding the CW Demilitarization in Russia: Time to Share the Burden."

in this case, the Batelle Memorial Institute with the State Scientific Research Institute for Organic Chemistry (GosNIKhOT).⁸⁴ The U.S-Russian partnership for the construction of the CW destruction facility at Shchuchye has continued to yield substantial achievements.

The United States instituted an internship program for Russian and American scientists working on chemical weapons destruction to assist Russia in acquiring the skills necessary to execute its CW destruction program and to operate the future facility at Shchuchye. The internship program, made possible through a contract with General Physics, provided a channel for the exchange of technical knowledge and experience. Russian chemical weapons experts visited U.S. chemical weapons training and disposal facilities and American scientists made similar visits to Russian installations.⁸⁵

In 1995, the Russian Federation government established a partnership with Green Cross International (GCI) to communicate to its population the objectives and activities of its CW destruction program and to provide opportunities for public involvement.⁸⁶ The partnership initiated an extensive public outreach program to educate Russian citizens on environmental and public health issues in relation to the continued storage and destruction of chemical weapons. Forums have provided the local community with the opportunity to learn about the international requirements for the CW destruction, the technology proposed for use at the Shchuchye CWDF, and the time frame for

⁸⁴ PMCD, "Cooperative Threat Reduction: A Program Overview."

⁸⁵ Ibid.

⁸⁶ PMCD, "Public Outreach and Involvement in the Russian Federation," Available [Online]: <http://131.92.71.231/graphical/CTR/IP/FS/Outreach_in_RF/index.html> [24 September 2000].

implementing and completing the Russian destruction program. Additionally, the forums enable the Russian government to learn about community concerns and to address the community's questions about CW disposal efforts.⁸⁷ Green Cross Russia has also opened information centers in Kurgan and Shchuchye where the citizens can read information brochures, review reference materials, and examine equipment used by chemical weapons destruction workers.⁸⁸

The Russian government's campaign to ensure public health and environmental protection is supported by federal law, to include fundamental articles in the Federation's constitution. Essentially, these laws affirm the rights of citizens to a safe and clean environment and to complete access to environmental information. The law entitled "On Environmental Protection" states that Russian citizens may request information concerning the condition of the natural environment and the measures taken to preserve and protect that environment. The law entitled "On Sanitary and Epidemiological Welfare of the Population" guarantees citizens' rights to protection from exposure to hazardous substances. This legal framework facilitated the incorporation of the Russian government's promotion of public health and environmental protection into the overall chemical weapons destruction program.⁸⁹

In March 1998, a group of scientists from the Kurgan Public Outreach Office, Green Cross Russia, conducted a public opinion poll on the problems of chemical

⁸⁷ PMCD, "Chemical Weapons Disposal in Russia: Promoting Environmental and Public Protection," Available [Online]: <<http://131.92.71.231/graphical/CTR/IP/FS/Protection/index.html>> [24 September 2000].

⁸⁸ PMCD, "Public Outreach and Involvement in the Russian Federation."

⁸⁹ PMCD, "Chemical Weapons Disposal in Russia."

weapons storage and destruction in the Kurgan region. The group's objective was to obtain and analyze information on the public's attitude toward the chemical weapons in the area, the projected construction of the facility at Shchuchye, and the planned CW destruction. Four hundred and ninety-eight individuals living in Shchuchye or nearby settlements were specially selected to participate in the poll. The study showed that the problem of chemical weapons storage and destruction ranked high in importance, with the percentage of individuals not interested in the resolution of this problem within the 10% range. However, less than 20% of the public's views were primarily based on circulating gossip and were of an emotional nature. The public attitude towards destruction of chemical weapons in the region appeared to be reasonably positive with only 21.5% representing a distinct protest potential and 65% representing support for facility construction.⁹⁰

To satisfy its socio-economic commitments to the affected communities, the Ministry of Defense is coordinating with the administration of the Shchuchansky district and the Kurgan region for the construction of public infrastructure, to include construction of schools, hospitals, and housing. The installation of gas and water lines, sewage systems, wastewater treatment facilities and roads is also planned.⁹¹

On 2 October 1998, the future chemical munitions disposal facility site, located just outside the town of Shchuchye, was dedicated. U.S. and Russian officials held a

⁹⁰ PMCD, "Results of Applied Sociological Study Problems and Perspectives of Chemical Weapons Destruction in the Shchuchye Area, Kurgan Region," Available [Online]: <<http://131.92.71.231.graphical/CTR/IP/PR/19990818/index.html>. [24 September 2000].

⁹¹ Shcherbakova, "Poisonous Bomb."

special ceremony in which the foundation stone was unveiled and adorned with a plaque to denote the achievement of this historic milestone.⁹²

On 7 April 2000, the land allocation ceremony for the future chemical munitions disposal facility at Shchuchye was held, recognizing the transfer of the land deed from the Kurgan regional government to the Russian Ministry of Defense. The transfer came to pass when the regional government finally approved the use of the land for the construction of the Russian chemical weapons destruction facility.⁹³

Prior to official site selection and land allocation, CTR program managers awarded several contracts to support the design and construction of the nerve-agent destruction facility. Specifically, the Parsons Company of Delaware, which assisted in the development of the destruction technology process, is now involved in design preparation for the Shchuchye facility. The company was also responsible for providing logistical and administrative support to the Moscow-based Chemical Weapons Destruction Support Office, which was established in June 1993 as the focal office for coordinating the Russian chemical weapons destruction program.⁹⁴

Thus far, the CTR program has been dedicated to activities “leading up to” the construction of the Shchuchye facility, including technology development, site selection, land allocation, and design of the CW destruction facility. The project’s next activities

⁹² PMCD, “Joint U.S./Russian Site Ceremony For Future Chemical Weapons Disposal Facility,” Available [Online]: <<http://131.92.71.231/graphical/CTR/IP/PR/1998/199810/19981002/index.html>> [24 September 2000].

⁹³ PMCD, “Cooperative Threat Reduction Program Reaches Two Major Milestones,” Available [Online]: <<http://131.92.71.231/graphical/CTR/IP/PR/2000/200003/20000323/index.html>> [24 September 2000].

⁹⁴ PMCD, “Cooperative Threat Reduction: A Program Overview.”

include "facility construction, operator training, systemization, startup and facility turnover" and are currently pending the allocation of additional funds from the U.S. Congress and the fulfillment of public infrastructure obligations by the Russian Federation government.⁹⁵ Retired Air Force Brigadier General Thomas Kuenning, director of the Cooperative Threat Reduction program, has indicated that construction of the facility could be finished in 2004 or 2005, with operations beginning in 2006, assuming that the schedule is no longer delayed.⁹⁶ However, the CTR program's Russian CW destruction assistance and planned construction of the nerve-agent destruction facility at Shchuchye must contend with chronic financial, bureaucratic, and political challenges.

D. THE SHCHUCHYE PROJECT DILEMMA

The United States invested \$194 million toward the construction of the Shchuchye facility through 1999. For the FY 2000 budget, the Department of Defense requested \$475.5 million for the CTR program, of which \$130.4 million was directed toward security enhancements at chemical weapons storage sites and construction of the Shchuchye facility. The Administration's request, including the \$130.4 million for the CW-CTR program, was approved by both the Senate Defense Authorization Bill and the Senate Defense Appropriations Bill. The request was then adjusted when it passed through the House Defense Authorization Bill, which authorized only \$444.1 million for the entire CTR program and only \$24.6 million for the chemical weapons provision. Funding for the Shchuchye project was "zeroed out" in the National Defense

⁹⁵ PMCD, "Chemical Weapons Destruction Facility Planned for Kurgan Region."

⁹⁶ Walker, "Implementing the Chemical Weapons Convention."

Authorization Act for FY 2000, which earmarked the \$24.6 million to fund security enhancements at the CW storage sites. No funds, according to Sec. 1305 of the Authorization Act, "may be obligated or expended for planning, design, or construction of a chemical weapons destruction facility in Russia."⁹⁷

When the legislation was signed into law on 5 October 1999, President Clinton urged the Congress "to reverse its current ban on chemical weapons destruction assistance to Russia." Officials for the CW-CTR program remained hopeful because the Administration planned to present the next Congress with a detailed proposal to resume funding for the Shchuchye project.⁹⁸ Defense Secretary William Cohen and General Henry Shelton, chairman of the Joint Chiefs of Staff, both appealed to Congress to restore funding and warned that chemical weapons are "highly desirable weapons for terrorists and rogue states and represent a serious proliferation threat."⁹⁹

Despite the appeals and warnings, the House Armed Services Committee recently passed legislation that denied President Clinton's request of \$35 million for Russian chemical weapons destruction in FY 2001. Global Green USA, the American affiliate of Green Cross International, publicly criticized the committee's legislation. Dr. Paul

⁹⁷ Authorization Act quoted in Laura Beers, "Funding Russian Chemical Weapons Destruction." Center for Defense Information (17 June 1999) Available [Online]: <<http://www.cdi.org/issues/cbw/ruschem.html>>. [24 September 2000].

⁹⁸ PMCD, "Chemical Demilitarization Program Brings Russian Delegation to Alabama," Available [Online]: <<http://131.92.71.231/graphical/CTR/IP/PR/2000/200007/20000713/index.html>>. [24 September 2000].

⁹⁹ Business Wire, "Global Green USA Critical of Congress for Denying '00 Funding for Russian Chemical Weapons Destruction," Available [Online]: <<http://www.gci.ch/GreenCrossFamily/natorgs/america/usa/congress.html>>. [16 October 2000].

Walker, Green Cross Legacy Program director in Washington, argued that the “destruction of battlefield-ready Russian chemical weapons is one of the best national security investments” and that this “legislation contradicts all of our nonproliferation policies.” Global Green USA Executive Director Matt Petersen explained that “continued American support for the Russian chemical weapons destruction program is critical to the implementation of the international Chemical Weapons Convention.” Petersen’s organization successfully advocated the inclusion of language in the legislation that would keep the program running with prior-year funds.¹⁰⁰ Nonetheless, the legislation was less a dramatic policy shift than a predictable consequence of the bureaucratic trends and prevailing political climate concerning the CW-CTR program within the U.S. Congress.

A complex legislative process has been a perpetual challenge to funding CW destruction in Russia since the commencement of the CTR program. Although the president proposes a defense budget to Congress reflecting his administration’s pledges to international agreements or foreign governments, Congress has “the power of the purse” and “has several opportunities to adjust or even totally cancel budgetary requests in a multi-step process whereby funds are authorized and appropriated.” The CTR program budget, which “traditionally represents less than two-tenths of one percent of the entire Department of Defense budget,” is incorporated in the defense authorization bill

¹⁰⁰ Business Wire, “Global Green USA Critical of Congress for Denying ’00 Funding for Russian Chemical Weapons Destruction,” Available [Online]: <<http://www.gci.ch/GreenCrossFamily/natorgs/america/usa/congress.html>>. [16 October 2000].

prepared by the Senate Armed Services and the House National Security committees.¹⁰¹

The challenge is that even before members of the House and the Senate vote on funding for CTR, “no less than six different committees, with literally hundreds of legislators, have had an opportunity to change the level of CTR funding and to propose conditions about how it can be expended.”¹⁰²

To complicate an already complex process, legislators have often stipulated “items of special interest,” conditions or certifications to the defense authorization bills, which have either delayed, reduced, or taken away funds allocated to CTR. Several examples illustrate this legislative technique. In the FY 1996 Defense Authorization Act, Congress approved \$73 million for chemical weapons destruction, yet \$60 million of that amount could not be used by CTR until the president certified that:

- (a) Russia is in compliance with its obligations under the 1972 Biological and Toxin Weapons Convention;
- (b) Russia has agreed to procedures to govern site visits under the September 1992 trilateral agreement to resolve compliance concerns about Russia’s biological weapons programs;
- (c) British and U.S. officials have visited four declared military biological facilities in Russia;
- (d) Russia and the USA have completed the joint study of the feasibility of a chemical weapon destruction technology;
- (e) Russia is making reasonable progress towards a comprehensive plan to implement a chemical weapon destruction program; and
- (f) substantial progress has been made towards resolution of outstanding compliance issues under the 1989 Memorandum of Understanding and the 1990 Bilateral Destruction Agreement.¹⁰³

¹⁰¹ PMCD, “Frequently Asked Questions About CTR,” Available [Online]: <http://131.92.71.231/graphical/CTR/IP/FS/Frequently_Asked_Questions/index.html> [24 September 2000].

¹⁰² Smithson, “US Assistance to Russia’s Chemical Weapon Destruction Programme,” 129.

¹⁰³ Ibid, 131.

In addition, Republican Representative Gerald Solomon of New York sponsored an amendment to the FY 1996 Defensive Authorization Act, which would have withheld CTR funding until the president could certify, among other things, that Russia had ceased military actions in Chechnya and was not modernizing its nuclear weapons arsenal. Although the Solomon amendment was defeated, the president was still unable to certify all the listed conditions and CTR consequently received only \$13 million of the \$73 million originally authorized.¹⁰⁴ The remaining \$60 million was reallocated to strategic delivery vehicle dismantlement work in Ukraine, Belarus, and Kazakhstan.¹⁰⁵

Budget battles also surfaced in the FY 1999 House Defense Authorization Bill. The administration's funding request called for allocation of \$88.4 million to the CW-CTR program. The House National Security Committee had serious doubts about Russia's ability to satisfy its own financial obligations regarding the Shchuchye project and recommended reallocating \$53.4 million of the amount to the Strategic Arms Elimination Project. Ultimately, the entire \$88.4 million was conditionally approved in the final FY 1999 budget, which required the president's written certification that the Russian government was satisfying its political and financial obligations for CW destruction.¹⁰⁶

The recurrent competition for funds in Congress was a reflection of the legislature's tenuous political support for additional CW-CTR funding, particularly in areas that are auxiliary to destruction efforts. The decisions to eliminate CW-CTR funds

¹⁰⁴ Ibid, 131.

¹⁰⁵ Vogel, "Ensuring the Security of Russia's Chemical Weapons."

¹⁰⁶ Ibid.

for the Shchuchye project in FY 2000 and again in FY 2001 can be attributed to differing political priorities, financial realities, and lingering uncertainties.

First, the majority of congressmen do not endorse the view that the assistance provided by the CW-CTR program to Russia serves the interests of the United States. Many legislators view the funding for the destruction of CW in Russia as another foreign aid project and not as an investment in U.S. national security. Given this perception of the CW-CTR funding as a “foreign assistance program,” it is understandable that it has been vulnerable to cuts and termination.¹⁰⁷ Legislators often act to satisfy the immediate needs and concerns of the constituents who elected them. Foreign assistance programs have never been popular with the average U.S. citizen, who would prefer that government spending be directed toward tackling domestic issues, such as lowering taxes, fighting crime, or reforming welfare. Only a small percentage of U.S. citizens, well-informed on foreign and defense affairs, are likely to be aware of the CTR program and to share the view that the assistance to destroy Russia’s CW is in the national interests of the United States.¹⁰⁸

Second, Congress evidently does not perceive the stockpile of chemical weapons in Russia as a formidable threat to U.S. security. CTR funds for CW destruction in Russia were deleted from the FY 2000 budget by Congress, apparently because many Members of Congress judged that the program would “achieve less national security benefit for the United States than originally anticipated.”¹⁰⁹

¹⁰⁷ Ibid.

¹⁰⁸ Smithson, “US Assistance to Russia’s Chemical Weapon Destruction Programme,” 129.

¹⁰⁹ Business Wire, “Global Green USA Critical of Congress.”

In advocating a reduction in funds for the CW-CTR program, Sen. Pat Roberts (R-Kansas) said, “Unlike strategic nuclear weapons and long-range ballistic missiles, which pose a direct threat to U.S. security, the Russian chemical weapons stockpile poses more of a local environmental threat than it does a security threat to Americans.”¹¹⁰ Rep. Floyd Spence (R-South Carolina), the House Armed Services Committee Chairman, recommended the abolition of CTR support for Russian CW demilitarization, “arguing that nuclear weapons destruction should take complete priority.”¹¹¹

Third, Congress understands the stark reality of the potential financial “black hole” that assistance to the destruction of Russia’s chemical weapons represents. A recent report by the U.S. General Accounting Office (GAO) estimated that Shchuchye’s 5,600 tons of nerve agents would probably not be fully destroyed until 2017 unless the facility design was expanded.¹¹² Since so little Russian CW has been destroyed, the cost of the completion of the Russian destruction program is likely to increase substantially.¹¹³ Compounding the financial frustration for the U.S. Congress has been the slow progress of the site construction as well as frequent Russian requests that part of the U.S. funding go to social programs and local infrastructure.¹¹⁴ Additionally, U.S. Members of Congress are reluctant to approve large expenditures for CW destruction in

¹¹⁰ Roberts quoted in Khrpunov and Tucker, “Don’t Downplay Threat From Moscow’s Arsenal.”

¹¹¹ Spence quoted in Walker, “Implementing the Chemical Weapons Convention.”

¹¹² Ibid.

¹¹³ Blackwood, “Arsenic and Old Weapons,” 94.

¹¹⁴ Filipov, “Russian Arms Center Opens,” 2.

Russia because they have witnessed the cost for the U.S. chemical weapons destruction program rise to over \$15 billion.¹¹⁵

Finally, U.S. funding for CW destruction in Russia is unlikely to resume until lingering uncertainties concerning Russia's possible development of a new generation of nerve agent are resolved. Some legislators were understandably irritated to learn that GosNIIOKhT allegedly was and perhaps still intricately involved in a chemical weapon development program.¹¹⁶ A 16 September 1992 *Baltimore Sun* article indicated that by 1987 Soviet scientists had created a new nerve gas called Novichok, which has been alleged to be "ten times more lethal than VX," according to Vil Mirzayanov, an employee for twenty-six years at the institute where the program was conducted.¹¹⁷ Mirzayanov also claims that a binary CW code-named Substance 33 was developed in 1990, of which 15,000 tons were produced in the city of Novocheboksarsk but were falsely documented to give the impression that VX was being produced.¹¹⁸ If these allegations are true, the implications of such acts are extreme. According to Moodie, it would mean that "Russia has covertly developed a new class of nerve agent that it has not declared under the CWC. Moreover, it did so in a way consciously designed to circumvent the treaty by ensuring that the precursors for such an agent do not appear on the CWC schedules."¹¹⁹

¹¹⁵ Smithson, "US Assistance to Russia's Chemical Weapon Destruction Programme," 131.

¹¹⁶ *Ibid.*, 131.

¹¹⁷ Will Englund, "Ex-Soviet Scientist Says Gorbachev's Regime Created New Nerve Gas in '91," *Baltimore Sun* (16 September 1992), quoted in Moodie, "Chemical Weapons Threat," 21.

¹¹⁸ Vil Mirzayanov, "Free to develop chemical weapons," *Wall Street Journal*, 25 May 1994, sec. A, p. 16.

¹¹⁹ Moodie, "The Chemical Weapons Threat," 21.

E. CONCLUSION

The Cooperative Threat Reduction program orchestrated a commendable framework with specific goals to assist in the dismantling of the chemical weapons arsenal in Russia. The implementation of the CTR program to destroy the nerve-agent munitions in Russia encountered immediate obstacles, both technical and political; but the cooperation between the two countries continued. However, the most recent challenges to the CW-CTR program might be too formidable to overcome. Congress has halted funding for the construction of the Shchuchye facility. The decision comes after years of bureaucratic struggles, unstable political support, and questionable commitment by the Russian Federation in regards to chemical weapons destruction. This puts the United States at a difficult crossroads concerning the future of its non-proliferation policy and its obligations to uphold the integrity of the Chemical Weapons Convention, which may soon be without the participation of the Russian Federation. The uncertainties associated with Russia's continued adherence to the CWC are discussed in the next chapter.

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V. CONSIDERATIONS FOR U.S. AND ALLIED POLICYMAKERS

A. INTRODUCTION

U.S. assistance in the destruction of Russia's chemical weapons has been terminated because of various assessments and perceptions. The decision by Congress to halt funds for the Shchuchye project was largely influenced by the projected high cost of fulfilling the CW-CTR program in Russia, the uncertainty that Russia could satisfy its financial and social obligations to the destruction plan, and the suspicions about a clandestine CW production program in Russia. Despite the gravity of these considerations, U.S. and Allied policymakers should consider the possible implications of abandoning the CW destruction effort in Russia. The United States decision to terminate assistance for Russian chemical weapons disposal could prove detrimental to the integrity of the Chemical Weapons Convention, increasing the CW challenge for the United States and its allies and enlarging risks for the global environment.

B. THE CWC WITHOUT RUSSIAN PARTICIPATION

As mentioned in Chapter IV, Congress opted to earmark \$24.6 million to fund security enhancements at the Russian CW storage sites while eliminating funding for the Shchuchye project in the National Defense Authorization Act for FY 2000. Although vast improvements to security at Russia's CW depots are needed, some have suggested that such investments, in the absence of funding for Russian CW destruction, represent a "band-aid" solution to the problem. According to Igor Khripunov and Jonathan Tucker,

Only destruction of the weapons will remove the threat. Beyond the specter of chemical terrorism, failure to begin prompt destruction of Russia's chemical stockpile will have other negative consequences for

U.S. security. It will seriously undermine the Chemical Weapons Convention, the main legal bulwark against the further spread of chemical arms. Unable to comply with the obligations to destroy its chemical stockpile, Russia may have no choice but to withdraw from the treaty.¹²⁰

Withdrawal of U.S. funding for CW destruction in Russia may indeed constitute a factor, among others, leading Russia to withdraw from the CWC. Even with the five-year extension (discussed in Chapter I of this thesis), Russia will not be able to meet its CWC requirements. Russian experts admitted in a recent report that it would take 25 to 30 years to dispose of the CW stockpiles in Russia.¹²¹ Because of its other priorities (such as developing new nuclear delivery systems, notably the Topol-M ICBM and the Iskander SRBM), the Russian executive has neither the funds nor the support in the State Duma to continue the CW destruction program without substantial foreign aid.¹²²

According to Harold Smith,

The central problem is the absence of an economic multiplier in the world of chemical demilitarization. In essence, a ruble spent on dismantlement is a ruble gone, whereas, a ruble spent on a potentially productive factory is an investment likely to lead to more rubles, more factories, and to a more stable Russia.¹²³

Russia's dire economic situation has led some of its officials to question the prudence of Moscow's ratification of the CWC. Tamara Zlotnikova, chairwoman of the Duma's Ecology Committee, stated that the ratification of the CWC was a mistake and that Russia is not financially capable of successfully implementing its CW destruction

¹²⁰ Khrpunov and Tucker, "Don't Downplay Threat From Moscow's Arsenal."

¹²¹ *Russian Press Digest*, 30 October 1998, quoted in Blackwood, "Arsenic and Old Weapons," 93.

¹²² Beers, "Funding Russian Chemical Weapons Destruction."

¹²³ Smith, "Funding the CW Demilitarization in Russia: Time to Share the Burden."

plan. In her view, it would be cheaper to preserve the chemical weapon stockpile than to destroy it. Other members of the Duma reportedly concur with Zlotnikova's view of CWC ratification as a mistake.¹²⁴ N. Poroskov stated,

After the August [1998] financial crash the State Duma adopted a protocol decision in which there is an instruction to carry out a juridical analysis of possible ways for Russia to leave the [CWC] Convention. Today, the country faces a dilemma: either to strain every nerve and spend our last penny to keep to the time-scale laid down in the Convention or to leave it.¹²⁵

The prospect of the CWC levying a financial penalty against an already financially strained Russia when it most likely will fail to destroy its chemical weapons arsenal by the 15-year deadline may also influence the Russian government to withdraw from the treaty. Some analysts have even suggested that Russia's financial incentives for withdrawal from the CWC may be reinforced by strategic incentives.

The strategic implications of NATO enlargement into former Warsaw Pact territory and introduction of a new NATO strategic doctrine, the perceived widening of the military-technological gap between the Alliance (particularly the US) and Russia, and the latter's inability to revive its military potential through defence integration in the former Soviet space and rapid domestic reform, are prompting a far reaching reassessment of its security situation.¹²⁶

Although strategic and tactical nuclear weapons remain the primary deterrent within Russian military doctrine, perceived emerging threats to its national security may cause the Russian Federation to re-evaluate the utility of chemical weapons. Military

¹²⁴ Zlotnikova quoted in indirect discourse in Blackwood, "Arsenic and Old Weapons," 93.

¹²⁵ Poroskov quoted in Derek Averre, "Chemical Weapons in Russia: After the CWC," *European Security* 8, no. 4 (Winter 1999): 131.

¹²⁶ Averre, "Chemical Weapons in Russia," 131.

analyst Vladimir Belous holds that “Losing CW would not substantially affect Russia’s security” but he warns that times and circumstances are changing. According to Belous,

Whereas with the end of the Cold War NATO and Russian troops were separated by a ‘buffer zone’ in East Central Europe and favourable military-political conditions were created for chemical disarmament, ‘plans to expand NATO to the east, when the bloc’s and Russia’s forces will again be in direct contact, particularly in the Kaliningrad and Baltic region, will inevitably lead to a return to the military importance of chemical weapons’.¹²⁷

Russian opinion concerning the utility of chemical weapons is currently divided.

A number of communist and nationalist deputies in the State Duma have argued that ratifying the CWC and renouncing the use of chemical weapons has been detrimental to Russia’s defense capability. Nonetheless, Aleksandr Pikaev, the chief counselor of the Duma Defense Committee, Aleksandr Pikayev, reportedly said, “the general consensus in Russia is that CW are no longer needed – politically or militarily.”¹²⁸ According to Derek Averre, “In line with commitments made under the CWC, there is no clear indication that any kind of militarily significant CW deterrent is planned.”¹²⁹

Under any circumstances, the integrity of the Chemical Weapons Convention will be threatened if the Russian Federation is not a participant. As mentioned in Chapter II, Russia possesses the world’s largest stockpile of chemical weapons. Russia’s membership therefore is intrinsically important to the effectiveness of the CWC, which seeks to ban the use, development, production, stockpiling, and transfer of chemical

¹²⁷ Vladimir Belous, “The military-political aspects of chemical disarmament,” *Khimicheskoe oruzhie I problemy ego unichtozheniya*, PIR Centre Moscow, 3 (1997) p. 11 quoted in Averre, “Chemical Weapons in Russia,” 140.

¹²⁸ Pikayev statement in February 1997 quoted in Averre, “Chemical Weapons in Russia,” 137.

¹²⁹ Ibid, 136.

weapons worldwide. Incentives for members' compliance and for non-signatories' future adherence could substantially decrease if Russia preserved its CW capability outside CWC supervision. The CWC is instrumental to the delegitimization of chemical weapons and a potentially useful device for pressuring "holdout" states, such as Libya, North Korea, and Iraq. However, absent Russia's participation, the CWC will "lose much of its value, opening wide the door to any nation that chooses to develop an arsenal of chemical weapons."¹³⁰

The ramifications of the CWC without Russian participation would also include increased challenges in enforcing WMD nonproliferation policy and in safeguarding against environmental and public health hazards. Currently, with the Russian Federation party to the CWC, international inspectors and American scientists have access to the Russian CW storage depots. Although OPCW inspections and the U.S.-Russian internship program cannot guarantee that Russian CW will not be stolen or smuggled, especially in small amounts, these formal practices may provide sufficient security against large-scale CW transfers.¹³¹ Also, without the cooperative CW monitoring in Russia under the auspices of the CWC, the tasks of assessing, warning, and countering the potential CW threat become even more daunting for the U.S intelligence community.

There are two general implications for environmental security if Russia withdraws from the CWC. First, the Russian Federation may elect to dispose of its chemical stockpile using its past, unsound methods such as sea dumping or open-air burning which are now illegal under the CWC. Second, the Russian Federation may simply elect to

¹³⁰ Smith, "Funding the CW Demilitarization in Russia."

¹³¹ Blackwood, "Arsenic and Old Weapons," 96.

abandon all efforts of CW disposal. As discussed in Chapter III, Russian chemical weapons are slowly degrading and, as their active CW agents break down, will become even more threatening to the environment as the material housing the agents deteriorates. According to Milton Blackwood, "the severity of the environmental threat that these storage sites present is a probably better argument for increased aid than the proliferation threat."¹³² This sentiment is shared by Harold Smith:

In the long term, the inevitable deterioration of the weapons will first threaten local residents and then slowly spread its poison into the national and international environments. It is in the interest of all nations, but particularly those near Russia's borders, to invest in the short term and avoid the consequences of inaction.¹³³

The United States has provided the bulk of financial assistance to the Russian CW destruction program, having committed over \$150 million in recent years toward the destruction of nerve-agent munitions, in support of WMD nonproliferation and U.S. national security. The European allies, on the other hand, have committed approximately \$50 million toward the destruction of Russia's blister agents, in an effort to prevent an environmental catastrophe. The funding has been grossly insufficient, given the estimated billions of dollars it would cost to destroy Russia's entire CW stockpile. The funds spent to date have contributed little to alleviating security concerns or environmental fears.¹³⁴

¹³² Ibid, 95.

¹³³ Smith, "Funding the CW Demilitarization in Russia."

¹³⁴ Mikhail Gorbachev, "Time to Abolish Chemical Weapons," Available [Online]: <<http://www.gci.ch/GreenCrossPrograms/legacy/articles/cwupdate.html>> [24 October 2000].

C. ADDITIONAL FUNDS FOR DESTRUCTION

Whether U.S. assistance to the destruction of Russia's chemical weapons is re-instituted or not, the nations of Europe must assume greater financial responsibility in aiding Russia's destruction of its CW arsenal. This deduction is consistent with statements made at the 1996 Conference on Dismantlement and Destruction of Nuclear, Chemical and Conventional Weapons, held in Bonn, jointly sponsored by NATO, the German Foreign Office, and the German state of North Rhine-Westphalia. The conference, with all affected parties well represented, devoted the largest share of its time to chemical weapons. Joachim Krause, deputy director of the Research Institute of the German Society of Foreign Affairs, identified the shortfalls in efforts made by European governments:

How does it come that European and Japanese efforts in this field are virtually dwarfed by the U.S. programmes? There is nothing on the side of the Europeans that could – even if everything is added together – come close to the huge U.S. effort. I always hear European politicians complaining about the increasingly inward looking U.S. Congress and the lack of interest in international affairs. I wish we had at least one single parliament in Europe which would show the same degree of international responsibility as the U.S. Congress did in this field – and I wish we had parliamentarians such as Senators Nunn and Lugar, who made such concerns a matter of priority.¹³⁵

There are signs that some European allies are answering the call to increase assistance. On 19 April 2000, an agreement between Italy and the Russian Federation was reached by which Italy will contribute \$8.3 million toward the destruction of CW stockpiles at the Kizner and Kambarka sites in the Udmart region. The Director-General of the OPCW, Jose Bustani, welcomed the conclusion of the agreement: "This is an

¹³⁵ Krause quoted in Smith, "Funding the CW Demilitarization in Russia."

excellent example of the sort of international cooperation that will greatly contribute to the timely destruction of chemical weapons... We urge other countries to follow the Italian example."¹³⁶ The Director-General has also called for establishing a standing committee to facilitate the coordination of foreign assistance to the Russian Federation and to increase transparency regarding the status of efforts to destroy chemical weapons in Russia among all the OPCW Member States. Nonetheless, he underscored the reality of the situation:

We have to face reality – without substantial international assistance Russia will not be in a position to destroy its chemical weapons within the time frame set by the Convention. A quantum leap in the level of such assistance is required for it to reduce, let alone eliminate, the current backlog.¹³⁷

D. CONCLUSION

In view of the decisions by Congress to eliminate CTR funding for CW disposal in Russia in the FY2000 and FY2001 budgets, it appears doubtful that the United States will resume, much less increase, financial assistance to the Russian CW destruction program. This outcome will probably affect the choices the Russian Federation government will make concerning the future disposition of its CW stockpile. It is unclear whether this decision by Congress reflects U.S. legislators' lack of confidence in Russia's political and financial commitment to CW destruction compliant with the CWC or U.S. legislators' low regard for the CWC itself. If, however, U.S. legislators sincerely value

¹³⁶ Bustani quoted in OPCW Headquarters, "Italian-Russian Chemical Weapons destruction Agreement Welcomed by the Director-General of the OPCW," Press Release (20 April 2000) Available [Online]: <http://www.opcw.nl/week/pressrel/PressRelease_00-01_ItalRus-Agree.htm> [10 November 2000].

¹³⁷ Bustani quoted in OPCW Headquarters, "Russia to Discuss Plans for Destroying its Chemical Weapons," Press Release (31 March 2000) Available [Online]: <http://www.opcw.nl/week/pressrel/PressAdvisory_00-10_RussianCWDestroy.htm> [10 November 2000].

the principles, instruments, and goals of the CWC, they must give strong consideration to resuming funding for the destruction of Russian chemical weapons.

The predominant factor influencing the halt of funds to Russian CW destruction has been cost. The fact is that Russia will most likely exceed the CWC deadline by many years before its entire CW arsenal can be destroyed and the cost could well exceed the amount necessary to destroy U.S. CW stockpiles. A decision to halt, resume, or increase funds for CW destruction in Russia should reflect a type of cost analysis. As mentioned in Chapter IV, funding for the Cooperative Threat Reduction program traditionally represents less than two-tenths of one percent of the entire Department of Defense budget. U.S. legislators should consider whether the money saved by eliminating financial assistance to the destruction of Russia's chemical weapons is worth the increased challenges to U.S. nonproliferation policy in deterring the production, possession, and use of chemical weapons or worth the weakened integrity of the Chemical Weapons Convention. They must consider whether the costs of successfully destroying Russia's CW arsenal outweigh the potential cost to U.S. national security if these weapons are proliferated and used in the future, owing in part to a breakdown of the CWC as the keystone of the CW nonproliferation regime. Finally, U.S. legislators should question how abandoning the CW destruction effort in Russia is to the benefit of the United States and its allies and security partners.

Of course, the United States should not bear sole responsibility for Russia's success or failure in destroying its chemical weapons. Japan and European nations, among others, must also consider the value of increased assistance to Russia in

eliminating its deteriorating stockpiles, which pose a threat of ecological disaster if responsible action is not taken.

Adequate U.S., European, and Japanese assistance for successful destruction of the CW stockpiles in Russia will require a fundamental change in policymakers' perspective. Policymakers will only support aid if they do not define assistance to Russian CW destruction as a handout or foreign aid but as an investment in their own nation's security. Moreover, they must recognize that potential environmental and public health disasters are not local problems but global ones. In recent years, significant accomplishments and milestones have been achieved in Russia regarding the destruction of its CW arsenal. The level of commitment demonstrated by Russia, the United States, Japan, and Europe will determine whether and how solutions to this problem are devised.

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